

CLAIMS

What is claimed is:

1. A system, comprising:
a scheduling logic configured to:
determine a charge rationing status of a frequency scaleable processor;
examine one or more selected properties of one or more executables to be scheduled for execution on the processor;
select an executable for execution by the processor based, at least in part, on the charge rationing status of the processor and the one or more selected properties;
and
generate a signal that causes the executable to be scheduled for execution.
2. The system of claim 1, where the charge rationing status can be determined by evaluating an operating frequency of the processor.
3. The system of claim 1, where the charge rationing status can be determined by evaluating one or more of, an operating frequency of the processor, an operating frequency history of the processor, an amount by which the operating frequency of the processor changed, and a frequency shift indicator.
4. The system of claim 1, where the scheduling logic is further configured to:
examine a processor data associated with the processor; and
select the executable for execution by the processor based, at least in part, on the processor data, the charge rationing status of the processor, and one or more of the selected properties.
5. The system of claim 4, where the processor data describes one or more of, a processor temperature, a temperature history of the processor, changes in the processor temperature, a processor power consumption, a processor power consumption history, changes in the processor power consumption, a current flowing through the processor, a history of current flowing through the processor, and changes in the current flowing through the processor.

6. The system of claim 1, where the one or more selected properties describe one or more of, an identity of an executable, whether an executable is associated with a processor frequency decrease, whether an executable is associated with a processor frequency increase, whether an executable is associated with a stable processor frequency, and one or more power attributes.
7. The system of claim 1, where the executable is one or more of, a process, and a thread.
8. The system of claim 1, where the charge rationing status of the frequency scaleable processor can be determined by processing an interrupt from the processor.
9. The system of claim 1, where the charge rationing status of the frequency scaleable processor can be determined by processing a charge rationing data associated with the processor status.
10. The system of claim 9, where the charge rationing data can be stored in one or more registers located inside the processor.
11. The system of claim 1, comprising:
 - a schedule data store configured to store a schedule data associated with an order in which one or more executables are to be executed by the processor; and
 - where the scheduling logic is further configured to:
 - determine an execution order for the one or more executables based, at least in part, on the charge rationing status of the processor, the schedule data, and the one or more selected properties; and
 - generate one or more signals that cause a selective arrangement of the schedule data in the schedule data store.
12. The system of claim 11, where the schedule data store is a process queue.

13. The system of claim 11, where the scheduling logic is further configured to selectively cause reordering of the schedule data in the schedule data store in response to the charge rationing status of the processor changing.
14. The system of claim 11, comprising:
 - a test processor configured to:
 - execute an executable;
 - monitor one or more properties of one or more of, the test processor, and the executable while the executable is executing; and
 - produce one or more characterizing data that characterize the executable with respect to one or more attributes associated with executing on the test processor.
15. The system of claim 14, where the characterizing data describe one or more of, an actual power rating during execution, an anticipated power rating during execution, an actual execution time, an anticipated execution time, an actual heat produced during execution, an anticipated heat produced during execution, an actual current during execution, and an anticipated current during execution.
16. The system of claim 14, where the scheduling logic is further configured to determine an execution order for an executable based, at least in part, on the charge rationing status of the processor, the one or more selected properties, and the characterizing data.
17. The system of claim 1, where the system is embedded in an image forming device.
18. The system of claim 1, where the system is embedded in a computer.
19. The system of claim 1, where the system is embedded in a cellular telephone.
20. A method, comprising:
 - determining an operating frequency of a frequency scaleable processor;
 - examining a power data associated with a process; and
 - selectively scheduling the process for processing by the processor based, at least in part, on the operating frequency of the processor, and the power data.

21. The method of claim 20, where the power data describes one or more events associated with the processor processing the process.
22. The method of claim 21, where the events include one or more of, the process not previously being run, the operating frequency of the processor increasing during processing, the operating frequency of the processor decreasing during processing, and the operating frequency of the processor not changing during processing.
23. The method of claim 20, where selectively scheduling the process for processing includes generating one or more signals that cause the processor to process the process.
24. The method of claim 20, where selectively scheduling the process for processing includes generating one or more signals that cause the process to be logically located at a selected location in a data structure that is organized by process schedule order.
25. The method of claim 20, where selectively scheduling the process for processing includes storing one or more values in a data structure that is organized by process schedule order.
26. The method of claim 20, comprising:
 - examining a processor data associated with the frequency scaleable processor; and
 - selectively scheduling the process for processing based, at least in part, on the processor data, the operating frequency of the processor, and the power data.
27. The method of claim 26, where the processor data describes one or more of, a processor temperature, a processor temperature history, a change in the processor temperature, a processor power consumption, a processor power consumption history, a change in the processor power consumption, a current flowing through the processor, a processor current history, and a change in current flowing through the processor.
28. A system, comprising:
 - one or more frequency scaleable main processors;

a memory operably connected to one or more of the main processors, where one or more of the main processors can access the memory; and

a charge rationing aware scheduling logic operably connected to one or more of the main processors, where the charge rationing aware scheduling logic is configured to:

determine a charge rationing status of one or more of the one or more processors;

examine power attributes associated with one or more executables stored in the memory, where the executables are to be scheduled for execution on one or more of the one or more main processors;

select an executable for execution by one or more of the one or more main processors based, at least in part, on the charge rationing status of one or more of the main processors and the power attributes associated with the executable; and

generate a signal that causes the executable to be scheduled for execution.

29. The system of claim 28, comprising:

a test processor configured to:

execute an executable;

monitor one or more properties of one or more of, the test processor, and the executable, while the executable is executing; and

produce one or more characterizing data that characterize the executable with respect to one or more attributes associated with executing on the test processor.

30. A computer-readable medium storing processor executable instructions operable to perform a method, the method comprising:

determining an operating frequency of a frequency scaleable processor;

receiving a power data associated with an executable entity; and

selectively scheduling the executable entity for processing by the frequency scaleable processor based, at least in part, on the operating frequency and the power data.

31. A system, comprising:

means for determining an operating frequency of a frequency scaleable processor;

means for determining a change in the operating frequency of the frequency scaleable processor;

means for evaluating one or more power attributes associated with an executable entity; and

means for scheduling the executable entity for execution on the frequency scaleable processor based, at least in part, on the operating frequency, the change in operating frequency, and the power attributes.

32. A system, comprising:

means for receiving a processor frequency data associated with a processor;

means for receiving a processor power data associated with a process; and

means for scheduling the process to execute on the processor based, at least in part, on the processor frequency data and the process power data.